

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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| COUNTRY | Hungary | REPORT | <div style="border: 1px solid black; width: 150px; height: 20px;"></div> | 25X1 |
| SUBJECT | Manufacture of Boron Steel in Hungary | DATE DISTR. | 21 April 1954 | |
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This is UNEVALUATED Information

THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.
THE APPRAISAL OF CONTENT IS TENTATIVE.
(FOR KEY SEE REVERSE)

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1. The Ganz Railroad Car Works is the largest consumer of special structural steel in Hungary. Finding suitable material for the driving axles of railroad motorcars presented a particularly knotty problem.
2. The axles of the diesel-motor-driven railcars exported to Argentina after 1937 broke in quick succession. It was impossible to eliminate axle fracture by increasing the diameter of the axles. This problem was, however, finally solved by the employment of "Monicro" steel (designation: Ganz MNC), after tests lasting for a number of years in the Ganz Works.
3. The "Monicro" is an alloy steel containing molybdenum, nickel, and chromium; in addition to the driving axles of motorcars, it is also used in the manufacture of gear wheels. The Cr Ni 45.68 and Cr Ni 35.68 chromium and nickel steels are also used for the manufacture of gear wheels.
4. Among the alloys used in steel making, Hungary possesses only manganese and chromium (from the USSR), while molybdenum and nickel reach the country in negligible quantities
5. This emergency led to a search for substitute materials, resulting in the discovery of boron. Data published in the western technical literature indicate that a fraction of one per mille of boron improves the quality of steel considerably. Boron is available in sufficient quantity in Hungary; since it is not a strategic material, it can also be easily procured
6. In the course of experiments lasting for 1½ years, the Ganz Works produced, with the addition of 0.006 - 0.001 percent of boron, a manganese steel which is a practically perfect substitute for the Cr Ni 35.69 chromium

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25 YEAR RE-REVIEW

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steel. This new product, which has a tensile strength of 70-90 kilograms per square millimeter, has been given the designation TB 90 in the Gans Works. In resistance to longitudinal stress, it is equivalent to chromium steel and is only slightly inferior to the latter in resistance to transverse stress.

7. A boron steel, designated FB 120, with a tensile strength of 125-140 kilograms per square millimeter has been developed as a substitute for the Cr Ni 45,68 chromium nickel. It contains, in addition to boron, also manganese and chromium, but no nickel or molybdenum. For the time being, however, this product has not been introduced into general use.
8. Attempts have also been made to add small amounts of titanium to steel, but these experiments have remained desultory.

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